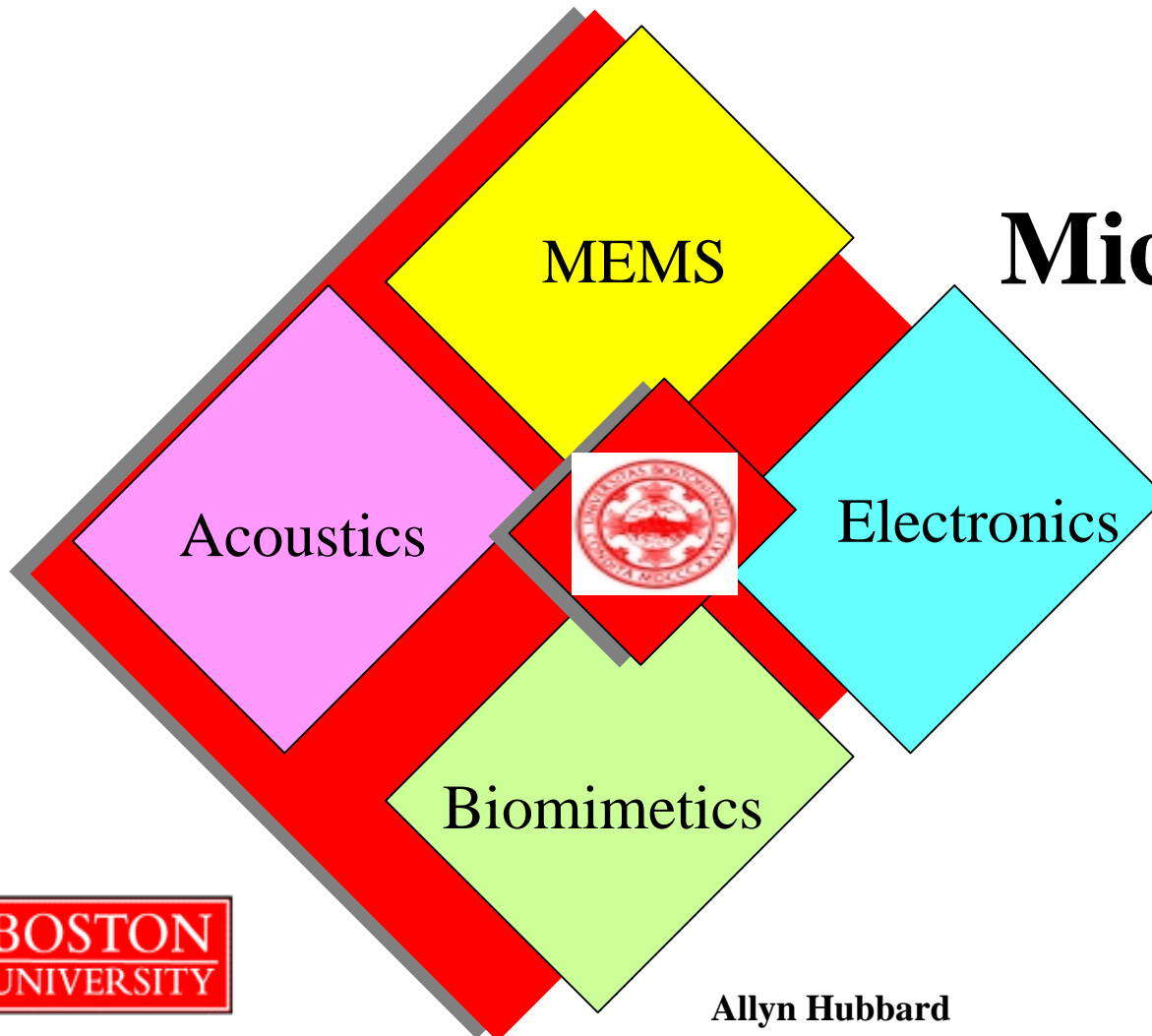


BOSTON UNIVERSITY GROUP FOR SENSORS



MicroElectronics



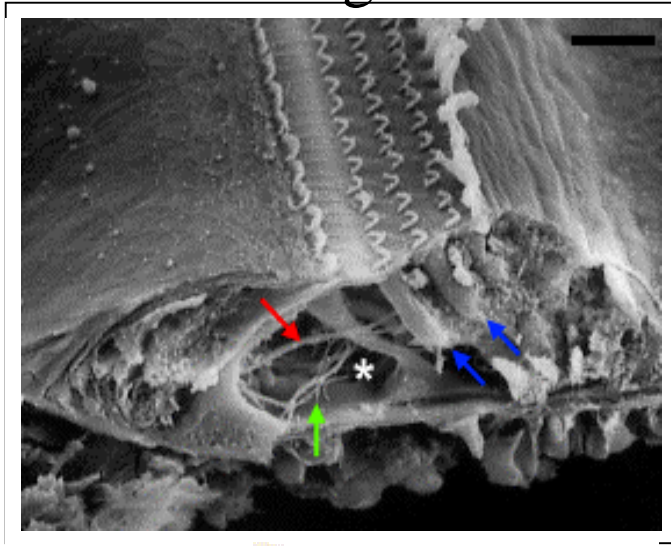
Allyn Hubbard



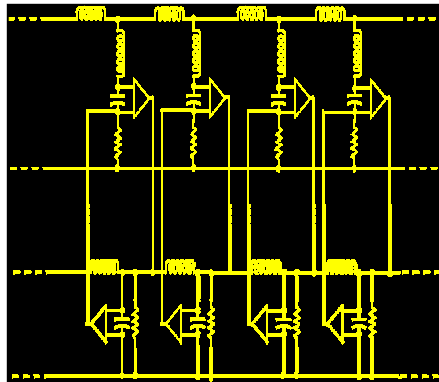
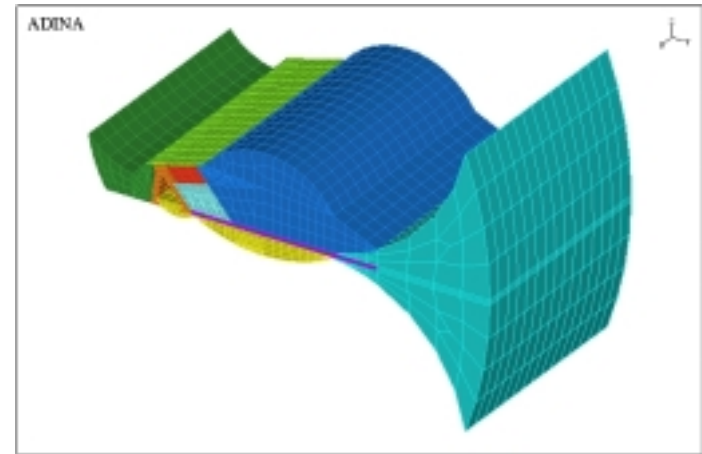
Report Documentation Page				Form Approved OMB No. 0704-0188	
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From Biology to Silicon: Ear

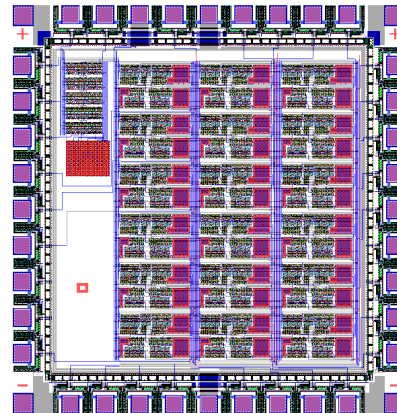
Biological



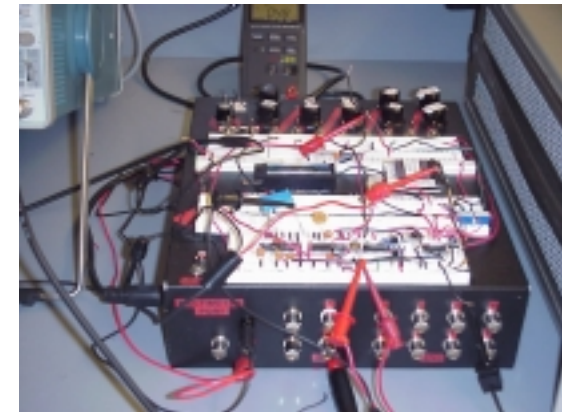
FEM Model



Circuit Simulation

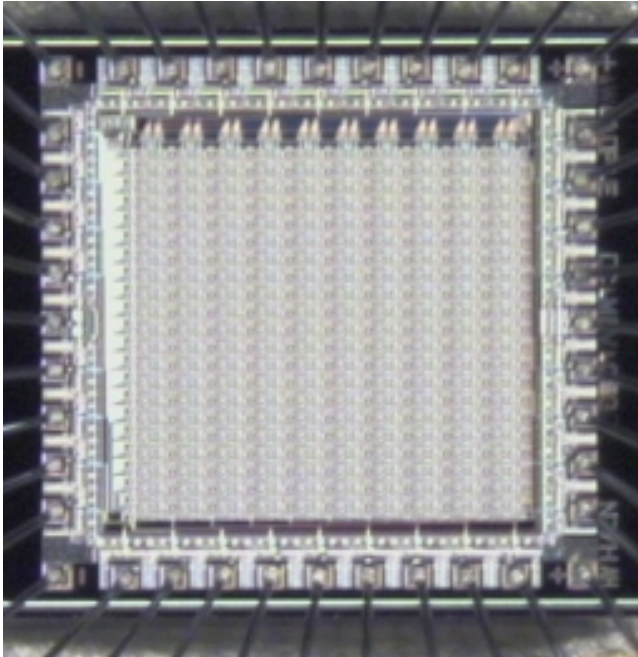


VLSI Realization

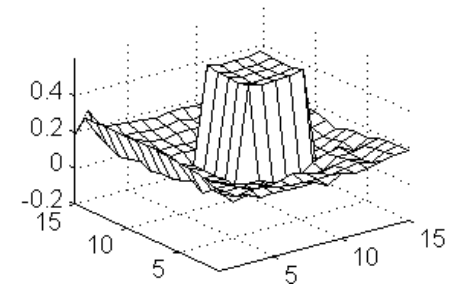
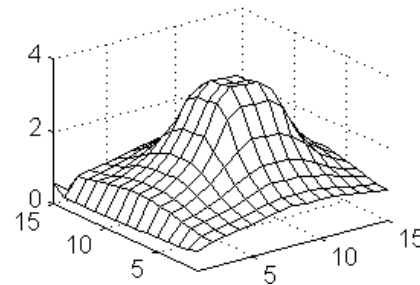
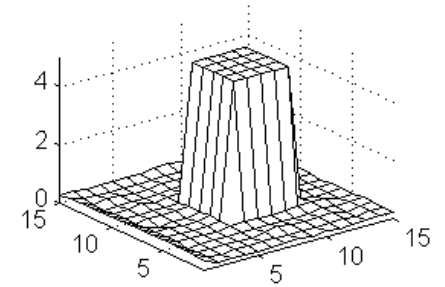
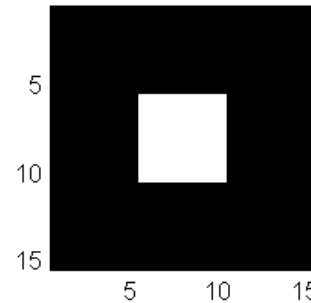


Hardware Test

From Biology to Silicon: Eye



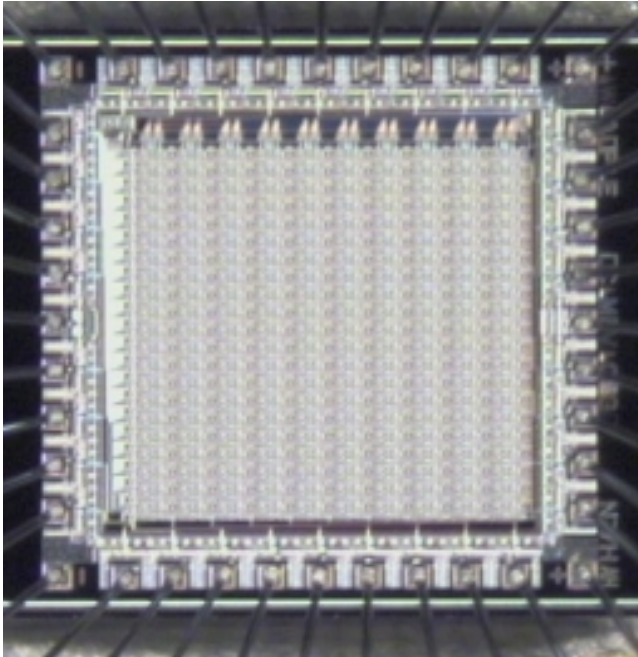
**Spatial filtering
chip**



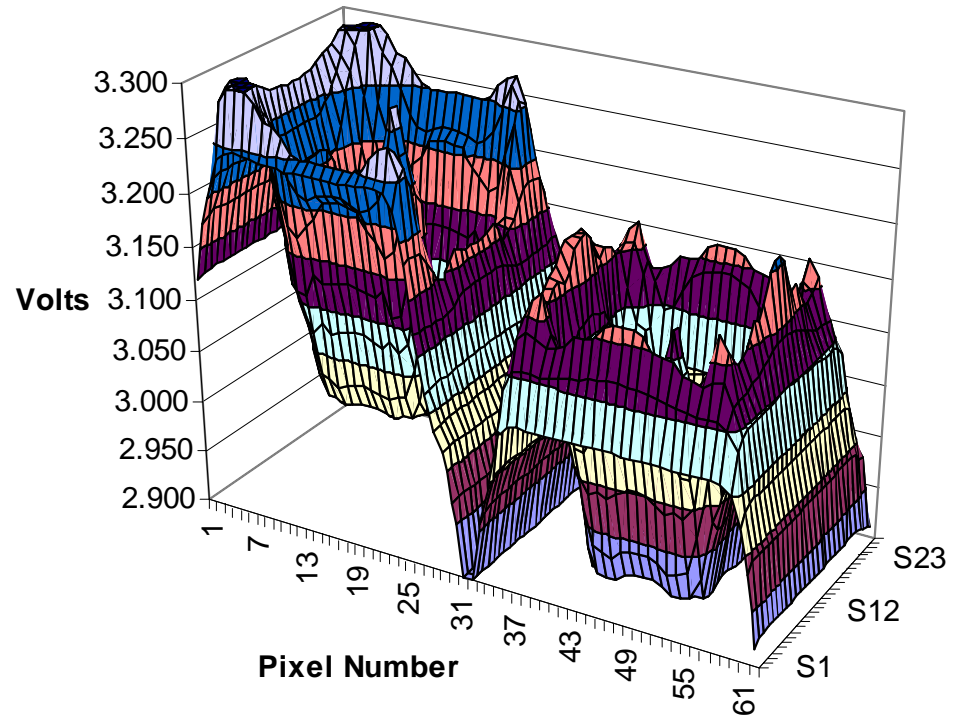
**Spatial filter
response**



From Biology to Silicon: Eye



**Spatial filtering
chip**



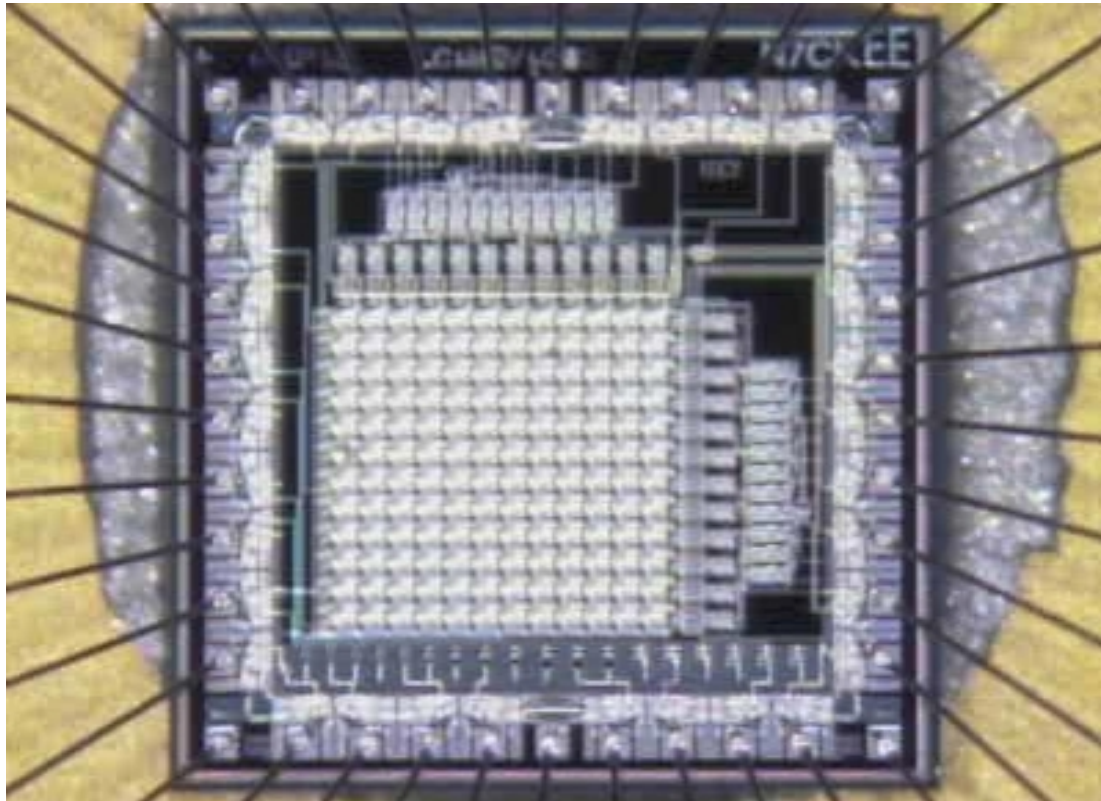
**Spatial filter
response**



High-bandwidth Asynchronous Integrated Intermodule Pixel-to-Pixel Communication

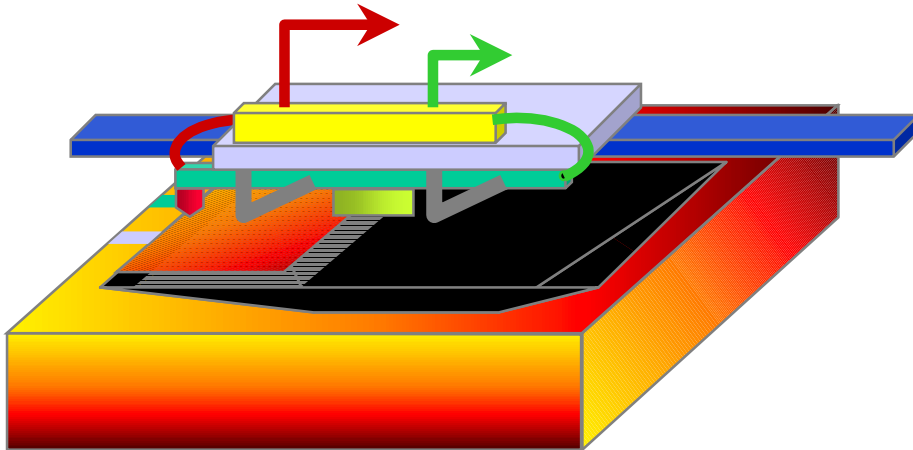
- Analog/Digital design
- Communicates “as needed”
- Low Power Standby
- 6 MHz Maximum throughput

Array of Pulsatile Neurons



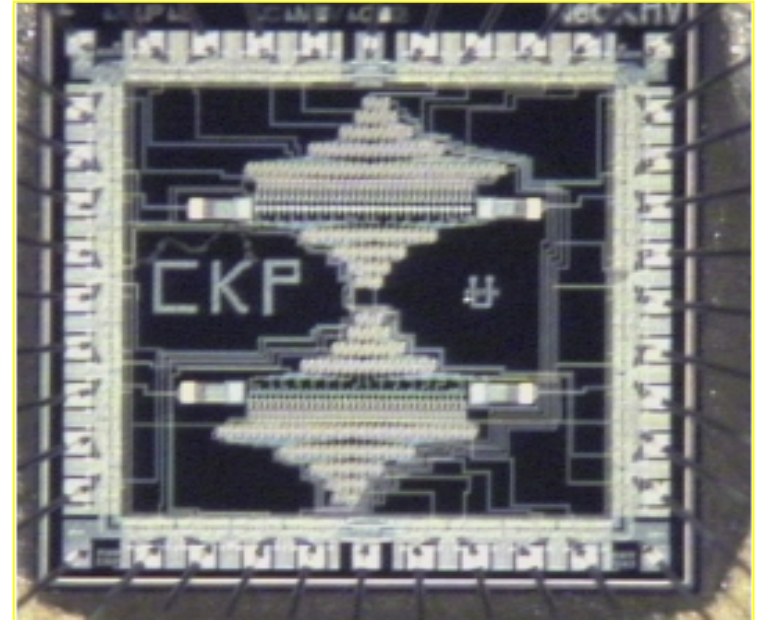
Chemistry on Silicon

Wafer-scale Chemical Analysis



**Silicon micro-well
with micro-servicing apparatus**

Microelectrophoresis



**Microchip with two separate
electrophoresing pathways
plus sensor electronics**